

TAXONOMIC ACCOUNT OF NARROW-CELLED *GOMPHONEMA* SPECIES WITH WIDE AXIAL AREAS FROM EASTERN US AND CANADA RIVERS

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This study presents an account of several *Gomphonema* taxa from rivers in Eastern North America which were found difficult to identify during qualitative counts on the Light Microscope (LM). These taxa are characterized by narrow cells (width $\leq 7\mu\text{m}$) with a wide axial area, short marginal striae composed of a single or double row of areolae, and the presence or absence of a stigma. They were reported by analysts as unidentified *Gomphonema* taxa (*Gomphonema* sp.) or as other similar taxa such as for example *Gomphonema entolejum* Østrup 1903. Samples used in this study were collected as part of four different projects related to water quality assessments. Three of these studies were conducted at the Academy of Natural Sciences of Drexel University (ANSP) in Philadelphia for the US Geological Survey's National Water-Quality Assessment (NAWQA), the New Jersey Department of Environmental Protection (NJ DEP), and the Virginia Department of Environmental Quality (VA DEQ). A fourth sample set was used from a study conducted by the Université du Québec à Trois-Rivières, Québec and the Canadian Museum of Nature, Ottawa, Canada. These *Gomphonema* taxa in the eastern US and Canada (Québec and Ontario) revealed four different taxa: *Gomphonema incognitum* Reichardt, Jüttner & Cox 2004, *Gomphonema stoermeri* Kociolek & Kingston 1999, *Gomphonema apuncto* Wallace 1960 and one taxon potentially new to science. Only by careful examination of ultrastructure on the SEM were we able to differentiate these taxa. This study proves once again the need for more detailed taxonomic work on the North American flora of freshwater diatoms. In particular, it shows the importance of careful taxonomic identification during Water Quality Assessments, since separation of these taxa may help provide more accurate diatom indices.